

Assessment

Chapter Test B**Cell Structure and Function**

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|--------------------------------|---|
| _____ 1. mitochondrion | a. stores DNA and synthesizes RNA |
| _____ 2. endoplasmic reticulum | b. digests molecules, old organelles, and foreign substances |
| _____ 3. plasma membrane | c. site of protein synthesis |
| _____ 4. ribosome | d. processes and packages substances produced by the cell |
| _____ 5. cell | e. prepares proteins for export and synthesizes steroids |
| _____ 6. Golgi apparatus | f. regulates movement of substances into and out of cell |
| _____ 7. nucleus | g. transfers energy to ATP |
| _____ 8. lysosome | h. the basic unit of life |

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

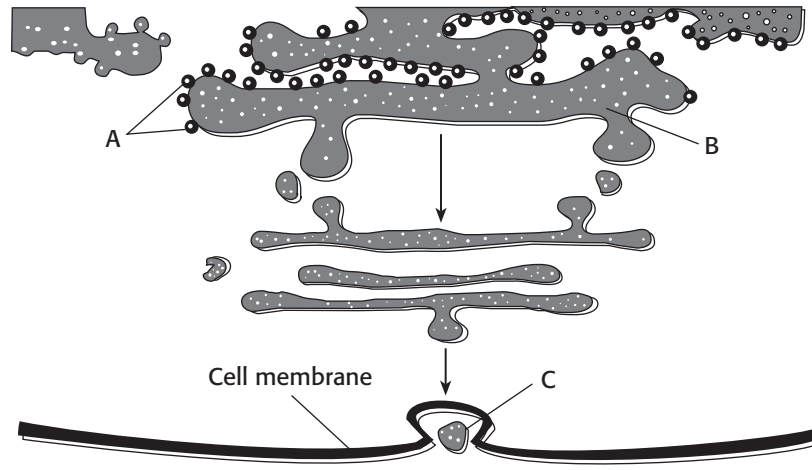
- _____ 9. The maximum size to which a cell may grow is limited mainly by the cell's
- | | |
|-------------------------|----------------------------------|
| a. shape. | c. function. |
| b. surface area. | d. internal organization. |
- _____ 10. The discovery of cells is linked most directly with
- | |
|---|
| a. early investigations of causes of diseases. |
| b. observations of large, unicellular organisms. |
| c. the development of the microscope. |
| d. efforts to reproduce organisms in the laboratory. |
- _____ 11. Which of the following are components of the plasma membrane that have a significant role in its functioning?
- | | |
|--------------------|----------------------------|
| a. lipids | c. carbohydrates |
| b. proteins | d. All of the above |
- _____ 12. In which of the following types of cells would you expect to find a large number of mitochondria?
- | | |
|----------------|------------------|
| a. bone | c. muscle |
| b. skin | d. blood |

Cell Structure and Function, Chapter Test B *continued*

- _____ **13.** Microfilaments and microtubules
- contain digestive enzymes.
 - function in cell structure and movement.
 - are sites of protein synthesis.
 - are sites of photosynthesis.
- _____ **14.** Which of the following is the correct order of structures in living things, from the simplest to the most complex?
- cells, tissues, organs, organ systems
 - cells, organs, tissues, organ systems
 - cells, organs, organ systems, tissues
 - organ systems, organs, tissues, cells
- _____ **15.** Short, hairlike organelles that can move and may cover a unicellular organism or line the respiratory tract are called
- chromatin strands.
 - flagella
 - cilia.
 - spindle fibers.
- _____ **16.** Name two functions of the proteins embedded in the plasma membrane.
- They transport substances across the membrane and aid in protein synthesis.
 - They store wastes and form the outer layer of the membrane.
 - They serve as attachment sites for molecules in the extracellular fluid and transport substances across the membrane.
 - They aid in cell movement and serve as attachment sites for molecules in the extracellular fluid.
- _____ **17.** Which of the following membrane proteins are integral proteins?
- cell-surface markers
 - receptor proteins
 - transport proteins
 - All of the above
- _____ **18.** Which of the following statements is true?
- Colonial organisms are multicellular.
 - Colonial organisms are unicellular.
 - Colonial organisms have specialized tissues.
 - The cells of colonial organisms are genetically different from each other.
- _____ **19.** Which scientist determined that cells come only from other cells?
- van Leeuwenhoek
 - Schleiden
 - Schwann
 - Virchow
- _____ **20.** Which of the following helps plant cells remain rigid?
- plasma membrane
 - nucleus
 - chloroplast
 - central vacuole

Cell Structure and Function, Chapter Test B *continued*

Refer to the figure below, which shows the packaging and distribution of proteins inside the cell, to answer questions 21–23.



- _____ **21.** The structures labeled *A* are
a. vesicles. **c.** ribosomes.
b. lysosomes. **d.** chloroplasts.
- _____ **22.** The structure labeled *B* is
a. the endoplasmic reticulum. **c.** a mitochondrion.
b. a Golgi apparatus. **d.** the nucleus.
- _____ **23.** The structure labeled *C* is a(n)
a. mitochondrion. **c.** ribosome.
b. endoplasmic reticulum. **d.** vesicle.

Read each question, and write your answer in the space provided.

- 24.** What are the three parts of the cell theory?

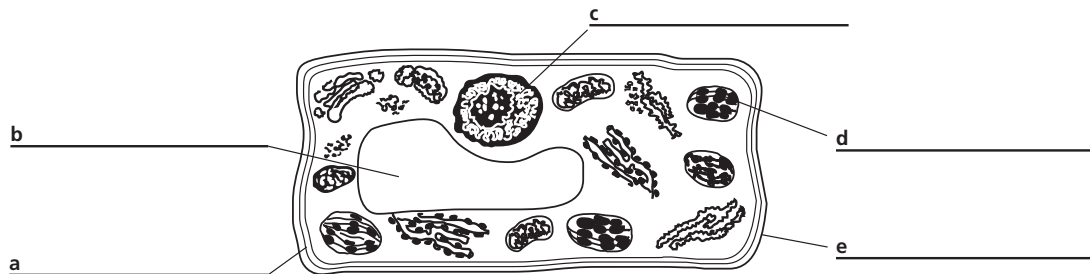
- 25.** Name two different kinds of animal cells, and describe how their shape is related to their function.

Cell Structure and Function, Chapter Test B *continued*

26. Describe two differences between prokaryotic cells and eukaryotic cells.

Refer to the diagram below to answer question 27.

27. The diagram depicts a plant cell. Write the names of structures a–e in the blanks.



f. Which of these structures are found in plants but not in animals?

28. What are the major roles of the nucleus, and what parts of the nucleus carry out these roles?

29. What is a colonial organism, and what does it have in common with a multicellular organism?

30. Where in the cell do the following steps of energy conversion occur?

a. Glucose taken into the cell _____

b. Glucose broken down to yield ATP _____

c. ATP used for cellular activities _____

Cell Structure and Function Chapter Test B (Advanced)

- | | |
|-------|-------|
| 1. g | 13. b |
| 2. e | 14. a |
| 3. f | 15. c |
| 4. c | 16. c |
| 5. h | 17. d |
| 6. d | 18. b |
| 7. a | 19. d |
| 8. b | 20. d |
| 9. b | 21. c |
| 10. c | 22. a |
| 11. d | 23. d |
| 12. c | |
24. (1) All living things are composed of one or more cells. (2) Cells are the basic units of structure and function in an organism. (3) Cells come only from the reproduction of existing cells.
25. Answers will vary. Skin cells are flat and platelike for covering and protecting the body's surface. Nerve cells are specialized for transmitting nerve impulses.
26. Answers include the following: eukaryotes contain a membrane-bound nucleus and other organelles; prokaryotes do not.
27. a. secondary cell wall; b. central vacuole; c. nucleus; d. chloroplast; e. primary cell wall. f. The central vacuole, chloroplast, and cell wall are found in plants but not in animals.
28. Answers include the following: The nucleus contains DNA and RNA. Ribosomes are synthesized and partially assembled in the nucleolus. The contents of the nucleus are enclosed by the nuclear envelope. RNA is synthesized in the nucleus and then passes into the cytoplasm through pores in the nuclear envelope.
29. A colonial organism is a collection of genetically identical cells that live together in a closely connected group. It is thought that multicellular organisms arose from a colonial ancestor.
30. a. plasma membrane; b. mitochondria; c. cytoplasm and other organelles

Homeostasis and Cell Transport Chapter Test A (General)

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|-------|-------|
| 1. e | 11. b |
| 2. i | 12. c |
| 3. h | 13. d |
| 4. f | 14. c |
| 5. a | 15. d |
| 6. b | 16. d |
| 7. c | 17. b |
| 8. g | 18. b |
| 9. d | 19. c |
| 10. d | 20. a |
21. energy
22. passive transport
23. equilibrium
24. active transport
25. carrier proteins

Homeostasis and Cell Transport Chapter Test B (Advanced)

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|-------|-------|
| 1. d | 12. a |
| 2. b | 13. b |
| 3. h | 14. c |
| 4. g | 15. d |
| 5. f | 16. b |
| 6. a | 17. c |
| 7. c | 18. b |
| 8. e | 19. a |
| 9. c | 20. d |
| 10. b | 21. b |
| 11. d | 22. b |
23. The rigid cell walls of plants prevent them from expanding too much as the cells take in water through osmosis. Some unicellular eukaryotes have contractile vacuoles that collect excess water and pump it out of the cell. Many animal cells increase the water concentration inside the cell by removing dissolved particles from the cytoplasm to maintain homeostasis. If cells are not able to prevent excess water from entering the cell, they may expand and eventually burst.
24. passive: diffusion, osmosis, and facilitated diffusion; active: sodium-potassium pump, endocytosis, and exocytosis